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ABSTRACT

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METHOD AND APPARATUS FOR PERFORMING CHEMICAL, QUALITATIVE AND
SEMI-QUANTITATIVE ANALYSES OF A URINE SAMPLE

A urine sample is analyzed for urine chemistry, formed bodies, and rare event evidence, all in a single sample container and under low power magnification. The sample container includes a urine sample receiving chamber which is connected to a urine chemistry chamber to a formed body isolation chamber, and to a rare events detection chamber so that the urine can flow from the receiving chamber to the other three chambers. The container may also include a sterile chamber for receiving an auxiliary portion of the urine which may be used for further analysis by the clinician if necessary. The chemistry chamber contains a miniaturized urine dip stick which is scanned by an optical scanning instrument for color emissions. The formed body isolation chamber can be precoated with one or more stains and is formed with a plurality of different through plane thicknesses whereby smaller formed bodies will be isolated in the smaller thickness regions of the chamber which the larger formed bodies cannot enter. The scanning instrument will scan the isolation chamber and can identify formed bodies by their characteristic light wave emission properties which result from the formed bodies exposure to the stains. The formed bodies can also be morphologically examined in the isolation chamber. The rare event detection chamber will include a component which will absorb essentially all of the water in the urine thus concentrating formed bodies on a surface in the chamber. This chamber can also be provided with one or more stains which will differentially highlight any rare events noted in the chamber by the scanning instrument. Rare events such as casts can be detected in this chamber.

Figure 1